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Mappings in conceptual space: Metonymy, metaphor, and iconicity in two signed languages

In this paper we present lexical data documenting the interaction of metonymy, metaphor, and iconicity in two signed languages, American Sign Language (ASL) and Catalan Sign Language (LSC). The basis of our analysis is the recognition that metonymy, metaphor, and iconicity all represent mappings across domains within a conceptual system. This framework also permits us to incorporate the form of signs, their phonological pole, as a region in conceptual space. The data examined exemplify several basic metonymies such as ACTION FOR INSTRUMENT and PROTOTYPICAL ACTION FOR ACTIVITY. We also examine cases in which gesture plays a role in metonymy. One area in which metonymy is quite extensively used in signed languages is in the creation of name signs. We explore various types of name signs and the metonymies involved in each. Finally, we examine two case studies of the complex interaction of metonymy, metaphor, and iconicity: the ASL epithet THINK-HEARING, and the LSC signs expressing the acquisition of ideas as IDEAS ARE LIQUID and knowledge as MIND IS A TORSO. We conclude that the deep interplay of metonymy, metaphor, and iconicity, as well as their cultural contextuality, requires that they be understood as conceptual space mappings.

Keywords: signed languages, metonymy, metaphor, iconicity, gesture

1. Signed languages[1]

Signed languages are natural human languages used by deaf people throughout the world as their native or primary language. Although there has been no formal survey of the world's signed languages, linguists generally assume that they number in the hundreds.[2]

The gestural-visual modality of signed languages is reflected in their linguistic structure. Signed languages make extensive use of space, for example by incorporating spatial locations to indicate verbal arguments; in addition to the hands, the face plays a critical role in signed language grammar, expressing a range of information such as questions, topic, adverbials, and so forth.

American Sign Language (ASL), like many signed languages, is highly synthetic with tendencies towards polysynthesis. ASL allows morphemes indicating action, person agreement, aspect, and adverbial information to be combined into a single, multimorphemic ASL word; for example, 'I very carefully gave [one] to each [person]' would be expressed with a single sign in ASL.

A common misunderstanding is that signed languages are merely representations of spoken languages — that ASL, for example, is a signed representation of spoken English. Signed languages, however, are independent languages with their own lexicons and grammars. Like spoken languages, signed languages have genetic and historical relations with other signed languages. ASL's closest genetic relative, for example, is French Sign Language (LSF).

Another common misunderstanding is that signed languages are merely (or largely) comprised of fingerspellings. This is not the case. Fingerspelling makes use of twenty-six handshape configurations that correspond to the alphabet. It is primarily used to indicate proper nouns and technical terms. Fingerspelling is more than a sequence of canonical handshape-alphabet letter correspondence, since the articulatory movements of segments within the fingerspelled word influence each other. Perseverative and anticipatory coarticulation affects the actual shaping of fingerspelled words, creating a fluid transition between letters that is prosodic and complex (Wilcox 1992). Fingerspelling is often used for proper names or technical terms, and is used for loan words in signed languages; for example, *of, all, sure*, and several other English words have been borrowed into ASL through fingerspelling. A variety of fingerspelling systems exist among the world's signed languages. ASL and many other signed languages use a one-handed system. British Sign Language

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[2] The 13th edition of the Summer Institute of Linguistics *Ethnologue* of the world's languages lists 114 signed languages (Grimes 1996).

(BSL) and languages that are genetically related to BSL use a two-handed fingerspelling system. The amount of fingerspelling used in a signed language varies greatly. ASL and BSL rely extensively on fingerspelling; the use of fingerspelling in most other signed languages is more restricted.

In this paper we investigate the function of conceptual metonymy as well as the interaction of metonymy with metaphor and iconicity in ASL and Catalan Sign Language (LSC). ASL is the language of the deaf community in face-to-face communication, learned as the first language or as a second and preferred language. It is used by an estimated 100,000-500,000 Americans, including Deaf people, hearing children of ASL-using deaf adults, and adult deaf signers who have learned ASL as their second language. LSC is the primary language of deaf people living in Catalonia, Spain. LSC has at least 18,000 total users, and 6,000 deaf native users.

2. Cognitive linguistics and signed languages

Much of the metonymy that we explore in this paper is iconically depicted in the articulated forms of the signs, making it necessary to first describe iconicity in general within a cognitive linguistic framework.

Wilcox (2004a) proposes a framework of cognitive iconicity to describe iconicity in general but with special relevance to signed languages. Cognitive iconicity is based on the theoretical model of cognitive grammar (Langacker 1987). A critical claim of cognitive grammar is that both semantic and phonological structures reside within a language user's conceptual space. Conceptual space is multidimensional, encompassing all of our thought and knowledge, "the multifaceted field of conceptual potential within which thought and conceptualization unfold" (Langacker 1987: 76). By adopting this view we can talk about similarities as distance between structures that reside in multidimensional conceptual space. Certain notions reside close to each other in conceptual space because they possess certain similarities. Other notions reside farther apart in conceptual space, reflecting their dissimilarity.

What is important for understanding cognitive iconicity is the claim that phonological notions also reside in conceptual space. The phonological pole of symbolic linguistic structures reflects our conceptualization of pronunciations, which range from the specific pronunciation of actual words in all their contextual richness to more schematic conceptions, such as a common phonological shape shared by all verbs, or a subset of verbs, in a particular language.

The typical case for language is that the semantic and the phonological poles of a symbolic structure reside in vastly distant regions of conceptual space. The sound of the spoken word *dog,* for example, has little in common

with the meaning of the word. This great distance in conceptual space, and the resulting incommensurability of the semantic and phonological poles, is the basis for *l'arbitraire du signe*. Alternatively, when the phonological and semantic poles of signs reside in the same region of conceptual space, arbitrariness is reduced.

Cognitive iconicity thus is defined not as a relation between the form of a sign and real world referent, but as a relation between two conceptual spaces. Cognitive iconicity may be understood as a distance relation within our multidimensional conceptual space between the phonological and semantic poles of symbolic structures.

One reason for the richness of iconic representation present in signed languages is that the phonological pole of signs involves objects, the hands, moving in space and interacting with other objects as viewed from the signer's and the observer's vantage point. In order to reveal the rich way in which our conceptions of objects and events can be iconically represented in signed languages, we need to explore the many ways in which we can conceptualize visible articulators.

2.1. Conceptualizing the articulators

By grounding language in embodied conceptualization, cognitive grammar provides a link between our perception of the world as populated by objects moving through space and time, and the linguistic categories and constructions used to represent these same entities. Cognitive grammar also provides a framework for conceptualizing the articulators of signed languages. Since signed languages are produced by hands moving in space and time and are perceived visually, the same theoretical constructs that are used to describe semantic structures also can be used to describe the hands as objects of conceptualization within our cognitive linguistic system.

In his pioneering analysis of the phonological structure of signed languages, Stokoe (1960) identified three major aspects of word formation: handshape, movement, and location. Battison (1978) added a fourth: orientation (the direction in which the palm faces). Certain conceptual properties of signed language articulators are discernable:

- The hands are autonomous objects manifest in the spatial domain.
- Movement is a dependent property of handshapes, manifest in the temporal domain.
- Location is a dependent property, manifest in the spatial and temporal domain.

- Orientation is a dependent property of handshapes, manifest in the spatial domain.

In signed languages, it is not only the semantic pole of a sign that plays a role in metonymy; the phonological pole, the visible moving articulators, also is conceptualized and becomes an important element of metonymic representations. So, for example, signed language articulators lead naturally to conceptualizations with the following metonymic possibilities:

- Hands may be conceptualized as objects with shapes, motivating metonymies in which the shape of a part stands for the entire object.
- Hands may be conceptualized as objects that move in space, motivating metonymies in which action stands for an instrument.
- Hands may be conceptualized as objects performing some function, motivating metonymies in which the hand's interaction with an object stands for the object, or motivating metonymies in which a prototypical action stands for the whole activity.

Hands are not the only articulators used in signed languages. The face plays a significant role in the expression of signed languages and consequently is seen in conceptual metonymy. For example:

- Eye gestures such as opening wide or squinting may be seen in conceptual metonymies in which the physiological effect on the eyes stands for the perceptual or motoric cause/accompaniment.
- Mouth gestures (e.g., opening or tightly shut) may be seen in conceptual metonymies in which the motoric consequence on the mouth stands for the degree or quality of the causal action or perception.
- Muscular tension in the jaw may be seen in conceptual metonymies in which the muscular result stands for the cause.

2.2. Signs, gestures, and metonymy

It should be clear from the discussion so far that signs are not merely gestures. Signs are the words of signed languages, with sublexical or phonological as well as morphological compositionality. Nevertheless, recent research suggests that gestures may be a source of linguistic material in signed languages (Janzen & Shaffer 2002, Wilcox & Wilcox 1995). Wilcox (2004a, 2004b) identifies two routes by which gesture becomes a part of the codified system

of particular signed languages: one leading from manual gesture to lexical morphology and then to grammatical morphology, the second leading from gesture (both manual and facial) to prosody and then directly to grammatical structure. The metonymies outlined above are based on the incorporation of gesture into signed languages. In our data, we find two types of metonymies based on gesture, one in which the gesture itself is metonymic for the target concept, and another in which the gesture plus a manual sign signals the metonymy. In the latter type, the sign may duplicate a facial gesture (e.g., the manual sign may represent a mouth opening wide), or it may be an unrelated sign, in which case the facial gesture is morphologically bound to the manual sign (e.g., the manual sign WORK combined with a facial gesture of eyes squinting and lips held together tightly which together mean 'with great care' = 'to work carefully'). As we will see in the data discussion below, many of these metonymies are based on the physiological or behavioral responses to external or internal stimuli (see Barcelona 2000).

3. Types of signed language metonymies

In this section we discuss examples of conceptual metonymies of several types that occur in ASL and LSC. We also point out the complex interplay of metonymy with iconicity, gesture, and metaphor.

3.1. Prototypical characteristic for whole entity

Simple lexical metonymies in which a prototypical physical characteristic is used to represent the whole entity are common in signed language. In both ASL and LSC, for example, the signs for 'bird', 'horse', and 'cow' depict prototypical physical properties of these animals: the beak, the ears, and horns, respectively.[3]

3.2. Action for instrument

In these types of metonymies, the action of the hands in interaction with some object represents the instrument of action. Examples include signs in ASL and LSC meaning TYPEWRITER, GUITAR, TOOTHBRUSH, JACK, and OAR. In the ASL sign TYPEWRITER, for example, the hands and fingers are moved in a way representing the action of typing.

[3] Mandel (1977) describes these and other types of metonymic and metaphorical depictions in greater depth.

3.3. Prototypical action for activity

The hands and their movement may also be used to represent some prototypical action taken with some object; this in turn may come to metonymically express the general activity. Again, in both ASL and LSC, the signs DRIVE-CAR, EAT, and BATHE exemplify this. The ASL sign DRIVE-CAR, for example, represents the prototypical action of the hands holding onto a car's steering wheel. This sign does not mean 'hold the steering wheel' or even 'steer a car' but instead the general activity 'drive a car'. Although many other activities are associated with driving a car, e.g. entering the vehicle, adjusting the rearview mirror, turning the ignition, it is the prototypical activity that forms the basis of the metonymy of DRIVE-CAR.

The strategy of using a prototypical interaction with a specific component to metonymically express a whole activity is common across a range of objects and activities. In LSC, the signs DRINK-BEER, DRINK-BRANDY, DRINK-RUM-AND-COKE use specific handshapes representing interaction with a container of a specific, prototypical shape, as well as movements characteristic of drinking from these containers. In DRINK-BEER, the hands interact with the handle of a beer mug, making the specific movement that would be used to drink from a mug. DRINK-BRANDY uses a different handshape, with the index and thumb touching at the tips, and the middle, ring, and pinky fingers extended and bent, as holding a prototypical glass of brandy. Similar examples from ASL include TO-WATER (to apply water from a garden hose), TO-SHAMPOO (to apply shampoo to one's head), as well as the signs for a range of athletic activities such as TENNIS (the hands represent gripping and swinging a tennis racket), GOLF (gripping and swinging a golf club), and VOLLEYBALL (both hands hitting upwards as if returning a volleyball serve).

3.4. *SALIENT CHARACTERISTIC OF A PERSON FOR A QUALITY*

A number of signs in LSC rely on a type of iconic, gestural metonymy in which a salient characteristic of a well-known person is extended to stand for a more general quality. These metonymies also typically involve metonymic chains. For example, the LSC sign CHARLIE-CHAPLIN is a compound that iconically depicts Chaplin's moustache and the movement of holding the cane and moving it in circles as Chapin did, thus relying on a PHYSICAL CHARACTERISTIC FOR PERSON (in this case two characteristics) metonymy. The sign is also used to mean 'person moving fast', which extends the first metonymy to a more abstract CHARACTERISTIC OF PERSON FOR GENERAL QUALITY metonymy. Similar examples include HITLER (the sign iconically depicts Hitler's characteristic moustache) for 'bad' or 'evil'; DALI (again de-

picting a characteristic moustache) for 'crazy'; and JESUS-CHRIST for 'suffering person'.

In ASL there is a similar type of metonymy that relies on characteristics of animals. The sign DONKEY/MULE, which iconically depicts a mule's large ear flapping downward, also means 'stubborn'. This metonymy appears to motivate a more abstract metaphor in which the sharp, downward motion of the hand (what formerly represented the ear) is the source of a metaphorical mapping onto an abstract target domain of stubbornness or refusal to act. This metaphor itself seems motivated by a metonymy suggesting that a sharp, tense movement downward (think of how someone might move her head while she refused to do something), the external behavioral response, stands for the internal emotion or attitude (Barcelona 2000).

As in the previous examples, metonymic chaining of CHARACTERISTIC FOR ENTITY and ENTITY FOR QUALITY occurs in this and other ASL examples.

3.5. Deviant behavioral effect for intensity of experience

A related set of metonymies occurs in LSC in which a visible, behavioral response to some experience stands not for the causing experience itself but for the intensity of the causing experience. The LSC sign that we gloss as CRAZY-EYES (an iconic sign depicting the eyes open wide and moving in wild circles) means 'really good'; the sign could be used, for example, to describe delicious food. Similarly, OPEN-MOUTH means 'astonishment'; and APOPLEXY (iconically depicting the wild movements of a person experiencing a seizure) can be used to describe any 'incredible' experience.

3.6. Metonymy and name signs

Name signs form a distinct subsystem of words in ASL, LSC, and most signed languages. Name signs function much like proper names in that they refer to a particular person instead of an object or concept common to the experience of all users of the language (Stokoe et al. 1965). Supalla (1992) identified two distinct types of name signs, what he called 'arbitrary' name signs and 'descriptive' name signs. The difference between the two types, according to Supalla (1992: 7), lies in "whether or not a name sign has a meaning." For example, Supalla's own name sign is produced by signing an S handshape at the chin, making two contacts, first on the contralateral side of the mouth and then on the ipsilateral side. This type of name sign is what Supalla calls an arbitrary name sign because it "has no meaning other than it represents the initial of my written (English) name" (ibid.). As an example of the second type, Supalla suggests that if a person has a salient visible attribute such as buck-

teeth, their name sign might use a handshape that is a classifier for the shape of the teeth, produced at the mouth location, and with a reduplicated movement.

While so-called arbitrary and descriptive name signs do rely on different strategies in their formation, it should be obvious that both rely on meaning, and they do so metonymically. Stokoe recognized this characteristic of name signs, noting that the type that incorporates a letter from the person's written name is different from proper names because the name sign refers "first to the name and through it to the person" (Stokoe et al. 1965: 292). He also noted that the same characteristic applies to those name signs that incorporate a visible peculiarity in their formation, Supalla's descriptive type. Stokoe further points out an extended type of metonymy that occurs in the latter type of sign. For example, the name sign for Thomas Hopkins Gallaudet (the founder of American deaf education and for whom Gallaudet University in Washington DC, the world's only liberal arts college for the deaf, is named) is taken from a sign depicting the action of removing pince-nez — the first metonymic extension, CHARACTERISTIC FEATURE FOR PERSON. Later, the sign GALLAUDET became a name sign for the entire Gallaudet family. Further, the sign extended to the sign for Gallaudet University.

3.6.1. PROMINENT QUALITY FOR PERSON

Many name signs incorporate the metonymic extension of a prominent quality or characteristic for the person. Parvaz (2003) offers a detailed description of several of these types of name signs. PROMINENT QUALITY FOR PERSON metonymic name signs are commonly used to refer to religious figures. For example, the Jewish name sign MOSES is a blend of the sign WISE (a hooked index finger tapping deeply at the space immediately in front of the forehead) and the manual letter M. This example also demonstrates that the prominent quality need not also be visible.

Although many LSC name signs avoid using orthographic metonymy, the name MARIA-JOSEP does use initialization of her given and family written name. The beauty of her characteristic dark face is accentuated by a movement depicting the letter J around the upper portion of her face with the handshape also of the letter J, a type of dual orthographic metonymy.

A similar case is the name sign for Phyllis, a deaf woman characterized by her memory and enjoyment of violin music she had heard as a child. Her name sign now is the ASL sign for music but produced with the handshape P. Because the name sign was based on the sign for music, Phyllis's name sign also provides a significant cultural identifier. People know immediately that she is different from others who were born deaf and grew up in the Deaf community.

These descriptive name signs need not always incorporate the blending of orthographic and PROMINENT QUALITY FOR PERSON metonymies. Some descriptive name signs in ASL rely on only the latter metonymy. For example, an interesting name sign for one adult deaf person in New Mexico depicts a bandage stuck onto an arm. The sign is produced by tapping the extended index and middle fingers twice on the forearm. People who initially meet this deaf man do not automatically understand why his name is produced in this way. The sign's handshape is the same as that which represents the fingerspelled H or U (depending on orientation of the hand), but neither this person's given nor surname begins with these letters. The name sign, while descriptive, does not use orthographic metonymy. This deaf man received his name sign on the first day that he entered the residential school for the deaf. He scratched his arm and had to go to the infirmary for a bandage. The nurse placed it in the cradle of his elbow. Because the young deaf children saw a new kid on campus but did not yet know his name, they began talking about him by describing the bandage on his arm, a highly visual distinguishing feature. Even though this person later became a respected adult in the Deaf Community in New Mexico, the characteristic bandage-sign stayed with him throughout his life. In effect, his name sign is 'Bandage-on-the-arm'.

LSC also uses descriptive name signs, making use of classifiers to identify a person's physical characteristics. The type of descriptive name sign just described for ASL, relying only on a PROMINENT QUALITY FOR PERSON metonymy, is more prevalent in LSC than in ASL, and is more prevalent in LSC than either the blended descriptive or the arbitrary types. For example, the name sign of a woman in Barcelona was motivated by the locks of curls that rippled past her cheeks. In signing her name, one twirls the index finger several times against the cheek, thereby metonymically evoking her characteristic hairstyle.

3.6.2. Family locus + letter

In ASL, the name signs described by Supalla as arbitrary are often used to assign names within an entire family. In this case, family name signs consist of the initialized orthographic first name placed on an arbitrarily location, such as the chin. Other members of the family are assigned names based on this family locus plus the initial letter of their written English name. Thus, Supalla's brother, Ted, might be given the name sign consisting of a T at the chin.

3.6.3. City and state name signs

City and states in the United States are often identified through the use of name signs. Most often these are of the arbitrary type where the handshape represents the initial letter of the written English name. It some cases, it appears that the name sign may originally have been a complex metonymic chain in which the handshape was derived from the name of a prominent person who lived in the city: FIRST LETTER OF WRITTEN NAME FOR PERSON, PERSON FOR CITY IN WHICH S/HE LIVED. Thus, the name sign for San Antonio, Texas, is the letter G touching the cheek. Deaf natives of this city suggest that the name sign was coined because a man whose last name started with G lived in San Antonio. The name sign thus is 'City where G lives'.

Some well-known cities and states also make use of a distinctive movement that vaguely resembles the number "7". For example, the sign for Chicago is produced by the handshape "C" slashing an outline of the number 7 in front of the signer. Several other cities follow the similar 7 motion, using a correspondingly different letter: **P**hiladelphia, **T**ucson, Te**x**as (which uses the letter X, not the initial letter T), **D**etroit, and so forth.

3.7. The interaction of metonymy, metaphor, and iconicity

The ASL sign THINK-HEARING (figure 1a) demonstrates the complex way in which metonymy, iconicity, and metaphor interact (P. Wilcox 2000). Etymologically, THINK-HEARING derives from a sign that is often glossed as SAY (figure 1b). SAY is articulated at the mouth, with tiny circular movements that visually indicate the flow of speech from the person who is talking. The sign SAY is metonymic because the circling movements stand for the breath emanating from the speaker's mouth. The exhaled air is metonymically extended to stand for the speech produced by the person.

In a semantically extended sense, SAY has also come to represent, and is often glossed as, HEARING-PERSON. Thus, the circling movements that represent speech are an example of synecdoche, where a part (the act of speaking) stands for the whole (the hearing person doing the speaking). This metonymy is then extended when the word representing the hearing person is used also to represent the thoughts and culture of hearing people. Although in hearing as well as deaf conversation we use the term 'hearing person', in the case of the sign HEARING-PERSON it is not the auditory acuity of the person that is cognitively highlighted, it is the act of speaking: hearing people are those who speak.

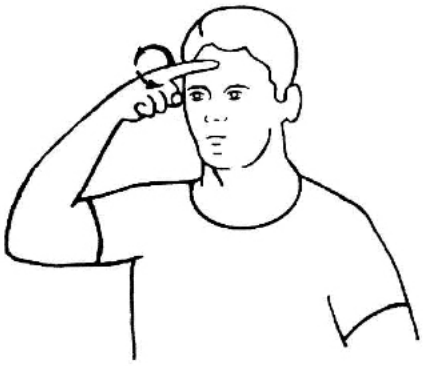

Figure 1a: The ASL sign THINK-HEARING

Figure 1b: The ASL sign SAY[4]

When the sign HEARING-PERSON is placed at a different location, multiple metonyms are further formed by what Goossens (1990: 338) calls cumulative metaphtonymy — a metaphor derived from metonymy. The sign is moved from the mouth area to the forehead. By virtue of this simple change in location, hearing-person (SAY) becomes THINK-HEARING (see figure 1a). The forehead is a metonym for the brain, which can serve as an ontological metaphor for a container of thought processes. When these thought processes are considered to be a hearing person's thought processes (THINK-HEARING), there is a cognitive invitation to compare the deaf person's thought process with the thought process of a hearing person. The metonymic expression THINK-HEARING takes on a metaphoric mapping. The sign no longer metonymically refers to voice production, to a hearing person, or even to the extended metonym for the culture and values of hearing people. By virtue of placement at the location of thought, the sign SAY, when referring to a deaf individual, assumes mappings from speech-related cultural values. These values of speech map onto the target domain of a deaf person's thoughts.

The sign SAY, through its several metonymic and metaphorical extensions as THINK-HEARING, thus comes to refer to a person who has at least some degree of hearing loss, who thinks like a hearing person, accepts speech and speech-related signing, values the ways of the hearing world, rejects ASL, and so forth.

[4] Illustrations are by Kip T. Fletcher.

Because THINK-HEARING is used to designate a person who has a hearing loss, and because spoken language values are negatively viewed in the Deaf culture, the labeling of a deaf person as THINK-HEARING carries a powerful cultural force. THINK-HEARING can be broadly translated as a deaf person who chooses "to think and act like a hearing person" (Padden & Humphries 1988: 53). In other words, these deaf and hard of hearing people choose "to embrace uncritically the ideology of other" (ibid.). Rutherford (1989: 79) explains that the word is used as a "derogatory identification" of people with hearing loss who use English, and is "directly analogous to calling a black person an 'Oreo'." It is an emotionally charged accusation, made all the more powerful by the creative interplay of metonymy, metaphor, and iconicity that exploits the expressive abilities of ASL, the language these THINK-HEARING people are charged with rejecting.

The complex interplay of metonymy and metaphor is also realized in LSC (Jarque 2003). The LSC data show how metonymic, iconic representations of concrete domains (e.g. the behavior of liquids in a container) refer to abstract domains (feelings and thoughts). The metaphors IDEAS ARE OBJECTS and MIND IS A CONTAINER are both substantiated in LSC signs, as they are in ASL (P. Wilcox 2000).

However, two metaphorical categories are found in LSC that are not commonly found in ASL: IDEAS ARE LIQUID and MIND IS A TORSO. When an idea or thought is learned from other people, or from an experience the person has, the lexical expression used reproduces a movement one would make when sipping liquid through a straw (IDEAS ARE LIQUID). The agent sips in the learned material, moving the two-handed straw-like classifier in an arc from left to right, sucking in the "ideas and thoughts" of other people. The ideas slide up through the sign produced by curled fingers of both hands and are 'swallowed' into the torso. The straw is not directly represented; rather, the fingers that make up the straw are iconically and metonymically (simple synecdoche) represented:

straw -> hands -> arms -> person acquiring the thoughts

In another LSC sign, the torso is structured from the waist up (the upturned non-dominant hand is placed at the waist) to the chin (the dominant hand turns palm downward below the chin), and the two hands (with palms orientated towards each other at waist and chin) represent the mind contained within the torso cavity (MIND IS A TORSO). New thoughts and ideas are taken into the body via the straw, resulting in a metaphor that is aided by metonymic constructions (straw, torso container).

When someone has a sufficient quantity of an entity (ideas) the 'level' can metonymically and metaphorically reach the chin. The flat-B handshape is used in a classifier construction to refer to horizontal entities, or for indicating

the amount of these ideas or the level of liquids within the torso. The lexical item ENOUGH is produced with a flat-B handshape touching the signer's body below the chin. When a person is aware of an idea (SABER, 'to know') a B handshape moves in circles *below* the chin. Liquid circulating in the torso container iconically, metonymically, and metaphorically represent the concept 'the agent is aware of the idea.'

A slight movement changes the meaning. If a person, e.g. a student, masters knowledge, such as learning how to sign in a sign language class, the dominant hand in a B handshape produces a movement outward and away from the signer's chin, as if liquid spills out from the torso container. The torso is a metonymic container for metaphorical thoughts. Thus, the concepts of being knowledgeable, mastering an intellectual accomplishment, or having plenty of ideas about a topic, correlate to ideas metonymically and metaphorically spilling out of the mouth of the torso.

4. Conclusions

The evidence from ASL and LSC clearly demonstrates that metonymy in signed languages often involves a complex interaction between form and meaning. Metonyms typically are iconically depicted in signed languages. This seems quite different from spoken languages, where metonymy relies on relations within the semantic domain only. This feature of signed language metonymy is quite predictable, however, given the vastly richer iconic potential of visible hands moving in space as compared to the more limited iconic potential of an acoustic medium.

We have also demonstrated that metonymy in signed languages interacts in complex ways with metaphor. This clearly supports claims such as those made by Barcelona (2000: 51) that "at least *typically*, metaphor is based on one or more metonymic mappings." In order to account for this, Barcelona proposes a broad definition of metonymy that recognizes that it, like metaphor, is a semantic mapping: "Metonymy is the conceptual mapping of a cognitive domain onto another domain, both domains being included in the same domain or ICM, so that the source provides mental access to the target" (2002: 33). We suggest that Barcelona's definition can be united with the definition of cognitive iconicity proposed by Wilcox (2004a), which regards iconicity as a mapping within a multidimensional conceptual space between the phonological and semantic poles of symbolic structures.

We also have seen that metonymy in signed languages interacts with meaningful but non-linguistic gestures. This was the case in CONSEQUENCE FOR QUALITY metonymies as well as the PERSON/CHARACTERISTIC FOR QUALITY metonymies. One interesting feature of these metonymies is that gestures recruited for metonymic representation need not be intentionally pro-

duced. Often these metonymies, especially those that include some facial component, are built upon unintentional behavioral consequences, which then come to stand for the more abstract and invisible causes.

Finally, we should note that metonymy, metaphor, and even iconicity must be interpreted in a cultural context. The complex mixture of metonymy and metaphor in the ASL sign THINK-HEARING clearly relies on the cultural values associated with the ideologies of hearing and Deaf people. Likewise, the metonymically motivated metaphors seen in LSC IDEAS ARE LIQUID and MIND IS A TORSO are not interpretable outside of their unique cultural context. This is, we suggest, a predictable implication of a view of iconicity, metaphor, and metonymy as mappings in conceptual spaces.[5] The nature of conceptual space mappings — whether they are the mappings across phonological and semantic domains seen in cognitive iconicity; the domain-internal metonymic mappings[6] in which one substructure provides mental access to another substructure, or to the entire localized domain (synecdoche); or metaphorical mappings across distinct semantic domains — will always depend on the precise structure of conceptual space. While conceptual spaces across individuals and language communities surely show a large degree of uniformity, they also exhibit substantial variation. Our conceptual spaces are not provided to us as an innate endowment[7]. They are constructed from our daily, lived interactions with our physical, social, and cultural environment.

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[5] Gärdenfors (2000) describes a geometric formalization of conceptual space which is quite consistent with the view of metaphor, metonymy, and cognitive iconicity presented here.

[6] See for example Ruiz de Mendoza (2000).

[7] This statement is of course vastly simplified. A slightly more accurate account would note that certain domains of our conceptual space, especially those linked to sensory qualities such as color perception, do appear to be innate. Others are apparently learned, such as volume (and its relation to the domain of height and size of containers). Finally, others are cultural, such as the several cultural conceptions of time. See Gärdenfors (2000: 26-30) for further discussion of the origin of quality dimensions.

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PRESLIKAVANJA U KONCEPTUALNOM PROSTORU: METONIMJA, METAFORA I IKONIČNOST U ZNAKOVNIM JEZICIMA GLUHONIJEMIH

U prilogu prikazujemo leksičke podatke koji dokumentiraju međudjelovanje metonimije, metafore i ikoničnosti u dvama znakovnim jezicima, Američkom znakovnom jeziku (American Sign Language, ASL) te Katalanskom znakovnom jeziku (LSC). Analiza se temelji na uvidu da metonimija, metafora i ikoničnost predstavljaju preslikavanje u domene unutar konceptualnog prostora. Ovaj nam okvir omogućuje da smjestimo oblik znakova, njihov fonološki pol, kao regiju u koncpetualni prostor. Podaci koji se analiziraju oprimjeruju nekoliko temeljnih metonimija poput RADNJA UMJESTO INSTRUMENTA ili PROTOTIPINA RADNJA UMJESTO AKTIVNOSTI. Također ispitujemo slučajeve u kojima gesta ima neku ulogu u metonimijskom preslikavanju. Jedno je od područja u kojima se metonimija obilato rabi u znakovnim

jezicima nastanak znakova za imena. Ispitujemo različite tipove takvih znakova i metonimije koje su pri tome djelatne. Naposljetku, prikazujemo dva slučaja složenog međudjelovanja metonimije, metafore i ikoničnosti: epitet THINK-HEARING u Američkom znakovnom jeziku te znakove u Katalanskom znakovnom jeziku koji izražavaju razumijevanje ideja pomoću metafore IDEJE SU TEKUĆINE, te znanja putem metafore UM JE TORZO. Zaključuje se da tijesno međudjelovanje metonimije, metafore i ikoničnosti, kao i njihova kulturna kontekstualizacija govori u prilog njihovog shvaćanja kao preslikavanja u konceptualnim prostorima.

Ključne riječi: znakovni jezici gluhonijemih, metonimija, metafora, ikoničnost, gesta